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Reg. No. 1-571-273-2885 on September 20, 2006

PATENT  
Docket No.: 021318-001210US

TOWNSEND and TOWNSEND and CREW LLP

By: Eleanor J. Taylor

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

Marwan A. Jabri et al.

Application No.: 10/693,253

Filed: October 23, 2003

For: METHOD AND APPARATUS FOR  
DTMF DETECTION AND VOICE  
MIXING IN THE CELP PARAMETER  
DOMAIN

Customer No.: 20350

Confirmation No.: 9090

Examiner: Daniel Swerdlow

Art Unit: 2615

COMMUNICATION CONFIRMING  
ALLOWANCE OF CLAIM 26

Mail Stop Issue Fee  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants note that Claim 26 was not listed on the Notice of Allowability but was mentioned by the Examiner in the "Reasons for Allowance" under item No. 5 which states that "Claims 25 and 26 are allowable due to dependence from Claim 23." This Communication is submitted to confirm that Claim 26 has been allowed.

Respectfully submitted,

Daniel Mao  
Reg. No. 51,995

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Atty Docket No. 021318-001210US

ATTENTION:

Issue Fee

Group Art Unit 2615

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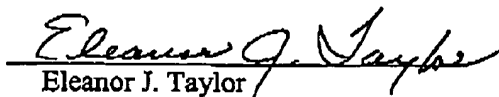
I hereby certify that the following documents in re Application of Marwan A. Jabri et al., Application No. 10/693,253, filed October 23, 2003 for METHOD AND APPARATUS FOR DTMF DETECTION AND VOICE MIXING IN THE CELP PARAMETER DOMAIN are being facsimile transmitted to the Patent and Trademark Office on the date shown below.

Documents Attached

1. Transmittal Form (1 p)
2. Part B - Fee Transmittal (1 p)
3. Copy Part B - Fee Transmittal (1 p)
4. Communication Confirming Allowance of Claim 26 (1 p)
5. Communication - Comments on Statement for Reasons for Allowance (7 pp)
6. This Certification of Facsimile Transmission (1 p)

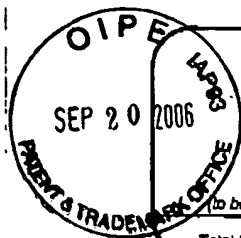
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Dated: September 20, 2006

  
Eleanor J. Taylor

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# TRANSMITTAL FORM

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Total Number of Pages in This Submission

Application Number	10/693,253
Filing Date	October 23, 2003
First Named Inventor	Jabri, Marwan Anwar
Art Unit	2815
Examiner Name	Daniel Swerdlow
Attorney Docket Number	021318-001210US

PTO/SB/21 (07-08)

## ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement  <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____  <input type="checkbox"/> Landscape Table on CD	<input checked="" type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): •Certification of Facsimile Transmission •Part B - Fee Transmittal •Copy Part B - Fee Transmittal •Communication Confirming Allowance of Claim 26 •Communication - Comments on Statement for Reasons for Allowance
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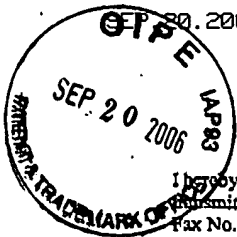
Firm Name	Townsend and Townsend and Crew LLP		
Signature	<i>Daniel Mao</i>		
Printed name	Daniel Mao		
Date	September 20, 2006	Reg. No.	51,995

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Customer No.: 20350

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Examiner: Daniel Swerdlow

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COMMUNICATION - COMMENTS ON  
STATEMENT FOR REASONS FOR  
ALLOWANCE

Mail Stop Issue Fee  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Examiner's Statement of Reasons for Allowance, Applicants note that claim 2 recites:

2. An apparatus for feature processing of telecommunications signals, the apparatus being adapted to operate in a CELP domain without decoding to a speech signal domain, the apparatus comprising:

a dual-tone modulation frequency (DTMF) signal detection module, the dual-tone modulation frequency (DTMF) signal detection module being adapted to determine one or more DTMF tones based upon at least one or more input CELP parameters, and the DTMF signal detection module being adapted to output the one or more DTMF signals if determined;

Marwan A. Jabri et al.  
Application No.: 10/693,253  
Page 2

PATENT

a multi-input mixing module coupled to the DTMF signal detection module, the multi-input mixing module being adapted to process CELP parameters from more than one CELP-based codecs, representing respective more than one voice signals, into a single set of CELP parameters;

wherein the dual-tone modulation frequency (DTMF) signal detection module comprises:

a DTMF feature computation unit capable of receiving the one or more CELP parameters and external commands and computing one or more DTMF features,

one or more DTMF feature pattern tables having one or more specific feature data corresponding to the one or more DTMF signals,

a DTMF feature comparison unit, the DTMF feature comparison unit being adapted to process the one or more DTMF features derived from the DTMF feature computation unit with the one or more specific feature data in DTMF feature pattern tables to identify one or more DTMF specific signals and to classify the one or more DTMF specific signals,

a DTMF feature buffer capable of storing the one or more DTMF feature parameters and the one or more DTMF classification data of one or more previous sub-frames or frames;

a DTMF decision unit capable of determining the one or more DTMF signals from DTMF classification data of a current and one or more previous sub-frames or frames according to one or more DTMF specifications and sending out the DTMF determined signals.

Applicants also note that claim 7 states:

7. An apparatus for feature processing of telecommunications signals, the apparatus being adapted to operate in a CELP domain without decoding to a speech signal domain, the apparatus comprising:

a dual-tone modulation frequency (DTMF) signal detection module, the dual-tone modulation frequency (DTMF) signal detection module being adapted to determine one or more

Marwan A. Jabri et al.  
Application No.: 10/693,253  
Page 3

PATENT

DTMF tones based upon at least one or more input CELP parameters, and the DTMF signal detection module being adapted to output the one or more DTMF signals if determined;

a multi-input mixing module coupled to the DTMF signal detection module, the multi-input mixing module being adapted to process CELP parameters from more than one CELP-based codecs, representing respective more than one voice signals, into a single set of CELP parameters;

wherein the multi-input mixing module comprises:

a feature detection unit capable of receiving one or more sets of CELP parameters and external commands and detecting a plurality of speech features;

a sorting unit capable of processing the detected features of the more than one set of CELP parameters and ranking an order of importance for each set of CELP parameters based upon a predetermined criteria;

a mixing decision unit capable of determining a processing strategy, selecting some or all sets of CELP parameters for processing, and controlling the processing of the more than one set of CELP parameters;

a mixing computation unit capable of processing more than one set of CELP parameters.

Applicants also note that claim 13 states:

13. An apparatus for feature processing of telecommunications signals, the apparatus being adapted to operate in a CELP domain without decoding to a speech signal domain, the apparatus comprising:

a dual-tone modulation frequency (DTMF) signal detection module, the dual-tone modulation frequency (DTMF) signal detection module being adapted to determine one or more DTMF tones based upon at least one or more input CELP parameters, and the DTMF signal detection module being adapted to output the one or more DTMF signals if determined;

a multi-input mixing module coupled to the DTMF signal detection module, the multi-input mixing module being adapted to process CELP parameters from more than one CELP-

Marwan A. Jabri et al.  
Application No.: 10/693,253  
Page 4

PATENT

based codecs, representing respective more than one voice signals, into a single set of CELP parameters;

wherein the CELP parameters represent silence descriptor frames.

Applicants also note that claim 14 states:

14. An apparatus for feature processing of telecommunications signals, the apparatus being adapted to operate in a CELP domain without decoding to a speech signal domain, the apparatus comprising:

a dual-tone modulation frequency (DTMF) signal detection module, the dual-tone modulation frequency (DTMF) signal detection module being adapted to determine one or more DTMF tones based upon at least one or more input CELP parameters, and the DTMF signal detection module being adapted to output the one or more DTMF signals if determined;

a multi-input mixing module coupled to the DTMF signal detection module, the multi-input mixing module being adapted to process CELP parameters from more than one CELP-based codecs, representing respective more than one voice signals, into a single set of CELP parameters;

wherein the multi-input mixing module has a dynamic topology and is capable of configuring different topologies according to the number of input compressed signals.

Applicants also note that claim 23 states:

23. A method for processing telecommunications signals in a CELP based domain, the method including determining DTMF tones and processing multiple input compressed signals using one or more CELP parameters of respective one or more CELP-based coders, without decoding to a speech signal, the method comprising:

inputting the one or more sets of CELP parameters and external commands;

determining one or more DTMF tones in a compressed signal from the one or more CELP parameters;

processing multiple sets of CELP parameters into a single set of CELP parameters;

Marwan A. Jabri et al.  
Application No.: 10/693,253  
Page 5

PATENT

outputting the determined one or more DTMF tones, if detected, and the processed CELP parameters in the single set;

wherein determining DTMF tones comprises:

deriving DTMF feature parameters from CELP parameters;

processing feature parameters with pre-defined look-up tables of DTMF signal feature data to output one or more results;

transferring the one or more results to the DTMF decision unit;

determining classification results of one or more previous subframes to output one or more DTMF signals according to DTMF signal definition standards;

storing the one or more results of the current subframe and updating results of one or more previous subframes; and

outputting DTMF tones, if a DTMF signal is detected.

Applicants also note that claim 24 states:

24. A method for processing telecommunications signals in a CELP based domain, the method including determining DTMF tones and processing multiple input compressed signals using one or more CELP parameters of respective one or more CELP-based coders, without decoding to a speech signal, the method comprising:

inputting the one or more sets of CELP parameters and external commands;

determining one or more DTMF tones in a compressed signal from the one or more CELP parameters;

processing multiple sets of CELP parameters into a single set of CELP parameters;

outputting the determined one or more DTMF tones, if detected, and the processed CELP parameters in the single set;

wherein the determining of the one or more DTMF tones is performed for every subframe.

Applicants also note that claim 28 states:



Marwan A. Jabri et al.  
Application No.: 10/693,253  
Page 6

PATENT

28. A method for processing telecommunications signals in a CELP based domain, the method including determining DTMF tones and processing multiple input compressed signals using one or more CELP parameters of respective one or more CELP-based coders, without decoding to a speech signal, the method comprising:

- inputting the one or more sets of CELP parameters and external commands;
- determining one or more DTMF tones in a compressed signal from the one or more CELP parameters;
- processing multiple sets of CELP parameters into a single set of CELP parameters;
- outputting the determined one or more DTMF tones, if detected, and the processed CELP parameters in the single set;
- wherein the processing of multiple sets of CELP parameters can handle silence description frames and discontinuous transmission.

Applicants also note that claim 29 states:

29. A method for processing telecommunications signals in a CELP based domain, the method including determining DTMF tones and processing multiple input compressed signals using one or more CELP parameters of respective one or more CELP-based coders, without decoding to a speech signal, the method comprising:

- inputting the one or more sets of CELP parameters and external commands;
- determining one or more DTMF tones in a compressed signal from the one or more CELP parameters;
- processing multiple sets of CELP parameters into a single set of CELP parameters;
- outputting the determined one or more DTMF tones, if detected, and the processed CELP parameters in the single set;
- wherein the processing of multiple sets of CELP parameters comprises:
  - performing signal feature computation on each set of input CELP parameters;
  - arranging the order of importance of each set of input CELP parameters according to the results of the signal feature computation;

Marwan A. Jabri et al.  
Application No.: 10/693,253  
Page 7

PATENT

determining the mixing strategy according to the order of importance and external commands;

mixing the input sets of CELP parameters according to the chosen mixing strategy;

outputting the mixed CELP parameters.

None of the prior art references teach or suggest an apparatus for feature processing of telecommunications signals or a method for processing telecommunications signals in a CELP based domain as recited in any of these claims.

Respectfully submitted,



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